

AMENDMENT TO THE CLAIMS

- 1.(currently amended) An apparatus comprising:
  - a carousel rotationally coupled to a base; and
  - a plurality of assembly stations including a merge station having a merge tool including at least one merge finger or spreader operable to engage at least one head or head suspension assembly of a data storage device in a first position and movable to a second position to merge the at least one head or head suspension assembly relative to a data storage media and the carousel being rotatable relative to the plurality of assembly stations.
2. (original) The apparatus of claim 1 wherein the plurality of assembly stations include a load/unload station and the carousel is rotatable between the load/unload station and the merge station.
3. (previously presented) The apparatus of claim 2 wherein the plurality of assembly stations include a premerge station between the load/unload station and the merge station and the premerge station includes a pre-merge cam assembly to preposition the at least one head or the head suspension assembly of the data storage device for merge operations.
4. (previously presented) The apparatus of claim 2 wherein the plurality of assembly stations include a post-merge station between the merge station and the load/unload station and the post-merge station includes a gripper assembly to remove a shipping comb of the at least one head or head suspension assembly.
5. (original) The apparatus of claim 1 wherein the carousel includes a plurality of assembly nests and the merge tool is compliantly supported between a raised position and a lowered position

proximate to the carousel and the merge tool includes at least one pin insertable into a datum socket or opening of the plurality of assembly nests.

6. (original) The apparatus of claim 5 wherein the datum socket or opening is formed between three rollers or bearings to provide an adjustable interface between the merge tool and the plurality of assembly nests.

7. (original) The apparatus of claim 5 wherein the datum socket or opening is formed between opposed spaced rollers or bearings to provide an axially adjustable interface between the merge tool and the plurality of assembly nests.

8. (previously presented) The apparatus of claim 1 wherein the carousel includes a plurality of assembly nests including a plurality of nest pads and the merge tool includes a plurality of nest balls which mate with the plurality of nest pads on the plurality of assembly nests.

9. (currently amended) The apparatus of claim 1 wherein the at least one merge finger or spreader is coupled to a rotatable merge head and the merge head rotates to engage the at least one head or head suspension assembly in the first position and to merge the at least one head or head suspension assembly relative to the data storage media in the second position.

10. (original) The apparatus of claim 9 wherein the merge head includes a yoke portion rotationally coupled to the merge head and spring biased relative to the at least one merge finger or spreader and the apparatus including a yoke latch assembly to restrict rotation of the yoke portion during merge operations.

11. (previously presented) The apparatus of claim 1 wherein the apparatus includes a machine vision system using an image of the at least one head or head suspension assembly area prior to or following merge operation.

12. (original) The apparatus of claim 11 wherein the machine vision system measures one of comb angle or position, head suspension angle or position, comb presence or latch position.

13. (currently amended) An apparatus comprising:

a carousel rotationally coupled to a base including at least one assembly nest and the at least one assembly nest comprising ~~a nest cavity formed relative to edge surfaces of a nest body~~ including a plurality of elongate sides enclosing a nest cavity and at least one finger ~~cantilevered having a first end coupled to one of the plurality of elongate sides and a cantilevered length extending from the first end to a second end located within an area of the enclosed relative to the nest cavity of the at least one assembly nest to engage a component of a data storage device securable in the nest cavity;~~ and

a plurality of assembly stations and the carousel being rotatable relative to the plurality of assembly stations.

14. (currently amended) The apparatus of claim 13 wherein the ~~data storage device~~ includes a hydrodynamic spindle assembly and the at least one finger includes a spring biased tip portion positioned to provide a biasing force relative to the spindle assembly ~~of the data storage device~~.

15. (currently amended) The apparatus of claim 13 wherein the at least one finger is movably coupled relative to the nest body of the at least one assembly nest and is actuatable via a cam assembly to position the at least one finger to engage the component of the ~~data storage device~~.

16. (previously presented) The apparatus of claim 1 wherein the plurality of assembly stations includes a premerge station and the premerge station comprises a cam assembly operable to move opposed fingers coupled to a positioning arm to position the at least one head or head suspension assembly for merge operation.

17. (original) The rotatable carousel of claim 13 wherein the at least one assembly nest includes a nest plate forming the nest body and the nest plate is removably coupled to the rotatable carousel.

18. (previously presented) The apparatus of claim 29 and comprising:

a lift operable between a retracted position proximate to a conveyor and a raised position proximate to the carousel to load workpieces from the conveyor onto the carousel and unload workpieces from the carousel to the conveyor.

Claims 19-21 (cancelled)

22. (previously presented) The assembly apparatus of claim 29 wherein the carousel includes plurality of assembly nests and the plurality of assembly nests include opposed latch assemblies operable between a retracted unlatched position to load workpieces and an extended latched position.

Claims 23-26 (cancelled)

27. (previously presented) The apparatus of claim 29 wherein the carousel includes a plurality of assembly nests removably coupled to a carousel plate.

28. (previously presented) The apparatus of claim 1 wherein the carousel includes at least one assembly nest and the at least one assembly nest includes a datum opening.

29. (currently amended) An apparatus comprising:

a carousel rotationally coupled to a base wherein the carousel includes at least one assembly nest and the at least one assembly nest includes a plurality of datum

openings including a rotational datum opening and an axial datum opening spaced from the rotational datum opening; and

~~a plurality of assembly stations and the carousel being rotatable relative to the plurality of assembly stations~~

an assembly tool including a first pin insertable into the rotational datum opening and a second pin insertable into the axial datum opening.

30. (currently amended) The apparatus of claim 29 wherein the ~~plurality of assembly stations include a merge station having an assembly tool~~ comprises a merge tool and the merge tool includes ~~a~~the first pin insertable into the rotational datum opening and ~~a~~the second pin insertable into the axial datum opening, ~~and wherein~~ the first pin is rotatable in the rotational datum opening to align the merge tool.

31. (previously presented) The apparatus of claim 29 wherein the at least one assembly nest includes at least one fixed bearing along a first edge of the at least one assembly nest and at least one spring loaded bearing along a second edge of the at least one assembly nest spaced from the first edge.

32. (previously presented) The apparatus of claim 4 wherein the apparatus includes a vision system that receives a feedback image to verify removal of the shipping comb by the gripper assembly.

33. (previously presented) The apparatus of claim 1 wherein the merge tool includes a motor operable to rotate the at least one merge finger or spreader in a first direction to merge the at least one head or head suspension assembly and operable to rotate the at least one merge finger or spreader in a second opposite direction to remove the at least one merge finger or spreader.